HHS Public Access

Author manuscript

Psychol Men Masc. Author manuscript; available in PMC 2024 May 31.

Published in final edited form as:

Psychol Men Masc. 2020 January ; 21(1): 25–35. doi:10.1037/men0000202.

Adonis on the Apps: Online Objectification, Self-Esteem, and Sexual Minority Men

Aaron S. Breslow,
Department of Counseling and Clinical Psychology, Teachers College, Columbia University

Riddhi Sandil,
Department of Counseling and Clinical Psychology, Teachers College, Columbia University

Melanie E. Brewster,
Department of Counseling and Clinical Psychology, Teachers College, Columbia University

Mike C. Parent,
Department of Educational Psychology, College of Education, University of Texas at Austin

Anthea Chan,
Department of Counseling and Clinical Psychology, Teachers College, Columbia University.

Aysegul Yucel,
Department of Counseling and Clinical Psychology, Teachers College, Columbia University.

Department of Psychiatry, Mount Sinai St. Luke's Hospital. Nicholas Bensmiller is now at the Institute for Human Identity.

Nicholas Bensmiller,
Department of Counseling and Clinical Psychology, Teachers College, Columbia University.

Elizabeth Glaeser
Department of Counseling and Clinical Psychology, Teachers College, Columbia University.

Abstract

The recent proliferation of mobile dating applications ("apps") has led to profound shifts in the ways sexual minority men (SMM) connect with others and themselves (Anderson, Holland, Koc, & Haslam, 2018). These apps, which often categorize users by factors such as body build, may promote sexual harassment and objectification (Griffiths, Murray, Krug, & McLean, 2018), potentially compounding already disproportionate body image concerns among this population (Daniel & Bridges, 2010). To test relations of app use and online objectification, we examined a path model testing tenets of objectification theory (Fredrickson & Roberts, 1997) among a national sample of 230 SMM. We measured direct and indirect relations between patterns of app use (i.e., number of apps used, app use frequency), online objectification, internalization of sociocultural standards of attractiveness, two psychological reactions (i.e., body surveillance, body satisfaction), and self-esteem, a mental health risk particularly salient among SMM. The present

Correspondence concerning this article should be addressed to Aaron S. Breslow, who is now at Department of Psychiatry and Behavioral Sciences, Albert Einstein College of Medicine, 1300 Morris Park Avenue, Belfer Building Room 405, Bronx, NY 10461. asb2233@tc.columbia.edu.

study demonstrated support for expansions of objectification theory both online and among SMM. Regarding direct relations, number of apps used (though not app use frequency) was positively related with objectification, internalization, and body surveillance, and negatively related with body satisfaction and self-esteem. Variables yielded indirect relations via internalization, body surveillance, and body satisfaction. Implications of our findings, as well as limitations and implications for future research and practice, are discussed.

Keywords

sexual minority men; objectification theory; body image; social media; self-esteem

Mobile dating applications (“apps”) have radically transformed our social, sexual, and romantic landscapes. This change has been perhaps felt most acutely among sexual minority men (SMM), who have historically been early adopters of social technology (Grov, Breslow, Newcomb, Rosenberger, & Bauermeister, 2014; Gudelunas, 2012). Apps increase accessibility to sexual and romantic partners and provide SMM a profound sense of agency to disclose their identities and desires, as well as develop community and connection in spaces beyond gay bars and bathhouses (Ahlm, 2017; Blackwell, Birnholtz, & Abbott, 2015). Through use of GPS, apps allow users to identify others nearby, simplifying the partner-seeking process by arranging profiles by proximity and interest. After logging on, users are presented with a grid of thumbnailsized profiles, each depicted by a photo, user name, and color-coded dot to indicate whether that user is online. Individual profiles often include clothed and/or nude images as well as brief details about users’ bodies, demographics, and interests. Many apps encourage users to categorize their body type by choosing a particular sexual “tribe” (e.g., twink, bear, jock, or daddy) to communicate information about one’s height, weight, shape, and distribution of body hair (Anderson et al., 2018).

Dating apps were rapidly embraced and are widely utilized by SMM. Notably, of the 27% of young Americans using dating apps in 2016, 70% are SMM under the age of 35 (Smith, 2016). The most popular app for SMM, Grindr, reports that its 2.8 million daily active users spend an average of 54 min in-app and send 228 million messages daily. Apps are used broadly and frequently. In one convenience sample of app-using SMM, 50% or more reported logging on at least 5 times per day and 61% at least once daily (Landovitz et al., 2013). These mobile venues are also effective at facilitating hookups. In a similar sample of app-using SMM, 75% reported having a recent sexual encounter with a partner met on Grindr (Rice et al., 2012).

Although apps hold enormous potential for connection, scholars have also begun to explore relations between app use and adverse health outcomes, namely, body image concerns among SMM (Miller, 2015; Roth, 2014). This inquiry is justified given both the elevated rates of such concerns in this population (Parent, 2013; Wiseman & Moradi, 2010) and the potentially objectifying processes central to app use (Miller, 2015). For SMM, objectification has demonstrated relations with numerous adverse outcomes, including STI/HIV vulnerability (Klein, 2009), issues with body image satisfaction (Wiseman

& Moradi, 2010), anabolic– androgenic steroid abuse (Parent & Moradi, 2011), and sexual minority stress (Brewster, Sandil, DeBlaere, Breslow, & Eklund, 2017). Given the proliferation of app use among SMM, scholars have begun to call for more robust analyses of online objectification experiences among this population (Blackwell et al., 2015; Holland & Tiggemann, 2016; Roth, 2014). The present study thus aimed to address this gap by exploring the impact of app use on body image and self-esteem among SMM.

Objectification Theory and SMM

One framework for exploring these relations within the context of app use among SMM is objectification theory (OT; Fredrickson & Roberts, 1997). Originally conceptualized to explain the processes by which sexual objectification manifests in elevated rates of women's psychological distress, OT postulates a set of variables by which women internalize experiences of being treated as objects for other people's use (for a review of key tenets of OT, see Szymanski, Moffitt, & Carr, 2011). As a result of contending with objectification, women tend to self-objectify (i.e., focus on their appearance, experience their body for how it looks rather than how it feels), in turn leading to psychological reactions (e.g., appearance anxiety, diminished internal awareness, body shame) and mental health risks (e.g., disordered eating, depression; Moradi & Huang, 2008; Tiggemann & Lynch, 2001; Tiggemann & Slater, 2001). OT suggests these psychological reactions may play a role in indirect relations between self-objectification and mental health risks among diverse populations (Fredrickson & Roberts, 1997).

OT has been expanded to understand the unique processes by which men may internalize similar experiences (Kozak, Frankenhauser, & Roberts, 2009; Martins, Tiggemann, & Kirkbride, 2007; Parent & Moradi, 2011). Rather than responding adversely to a thin, feminized ideal, men may contend with exposure to unrealistic sociocultural standards of muscularity and masculinity (Parent & Brace, 2017). SMM in particular may be more likely than their heterosexual counterparts to objectify themselves and other men. Studies show SMM may strive both for thinness and muscularity to meet difficult bodily expectations (Kozak et al., 2009). They may self-objectify (i.e., internalize sociocultural standards of attractiveness), in turn leading to psychological reactions (i.e., elevated body surveillance, lower body satisfaction, engaging in compulsive exercise and use of anabolic–androgenic steroids), and mental health risks (i.e., low self-esteem; Brewster et al., 2017; Gettelman & Thompson, 1993; Wiseman & Moradi, 2010).

As such, the present study aims to test relations between salient constructs in the context of objectification of SMM, as well as app-specific variables that may play additional roles. We proposed a digital, SMM-specific model of OT to test potential mechanisms through which patterns of app use and online objectification may accelerate these processes. In particular, we explored potential relations between two variables measuring patterns of app use (i.e., number of apps, app use frequency), online objectification, internalization of sociocultural standards of attractiveness, two potential psychological reactions (i.e., body surveillance, body satisfaction), and one mental health risk (i.e., self-esteem).

Patterns of App Use

To begin, we measured SMM's patterns of app use in two ways: by capturing (a) number of apps used and (b) app use frequency. Recent studies demonstrate that patterns of app use may have unique impact across populations in terms of psychological health and body image-related outcomes. For SMM in particular, one sample of app-using men reported using an average of 3.11 apps, logging on 8.38 times per day, and spending 1.31 hr daily online (Goedel, Krebs, Greene, & Duncan, 2017). These results suggest app-using SMM spend a significant amount of time viewing images of other men's bodies and potentially receiving objectifying messages about their own. However, it remains unclear whether the number of apps used or app use frequency may impact psychological outcomes or mental health risks for SMM. Data from one study with SMM suggest relations between higher frequency of social media platforms and increased body image concerns and eating disorder symptoms (Griffiths, Mitchison, Murray, & Mond, 2018). This study captures the potential impact of social media, though limited data exist on potential impacts of patterns of app use among SMM.

Online Objectification

Second, we aimed to expand OT in the digital realm by examining the potential role of online objectification. Objectification experiences are defined as the processes, behaviors, and interactions through which a person is reduced to their body or body parts (Fredrickson & Roberts, 1997). Among SMM, these experiences, compounded by exposure to media images objectifying men, have been found to have positive direct and indirect relations with internalization of sociocultural standards of attractiveness, body surveillance, and a sequalae of psychological reactions and mental health risks (Brewster et al., 2017; Daniel & Bridges, 2010; Giles & Close, 2008; Wiseman & Moradi, 2010). Online objectification may be more activating than offline experiences for a myriad of reasons. Apps are unique in their ubiquity and nonstop availability, the potential increased salience of social interactions given these apps are used exclusively by other SMM, and the real-time evaluative component of receiving "likes" or direct messages from users after unlocking photos or making references to one's body parts (Griffiths et al., 2018). Another revealing study found that Grindr-using SMM tended to objectify other men at higher levels than non–Grindr-using SMM (Anderson et al., 2018). Among Grindr-using participants, higher levels of objectification of others were positively related with both app use frequency and self-objectification (Anderson et al., 2018).

Processes of Self-Objectification

Internalization of Sociocultural Standards of Attractiveness

Individuals who experience objectification are likely to self-objectify, or internalize society's messages that their bodies are objects for other people's consumption (Fredrickson & Roberts, 1997). Self-objectification may involve the internalization of sociocultural standards of attractiveness (hereafter termed internalization), a process by which individuals view their bodies through the lens of external, social ideals. Among men, internalization has been shown to manifest in unique, nuanced ways. Rather than internalizing a thin

ideal, men may internalize sociocultural standards of masculinity and muscularity, including norms of emotional control, self-reliance, dominance, and pursuit of status (Brewster et al., 2017; Kimmel & Mahalik, 2005; Mahalik, Good, & Englar-Carlson, 2003; Parent & Moradi, 2011). Among SMM, internalization has demonstrated relations with psychological reactions and mental health risks. It may also be exacerbated by app use given the objectifying nature of apps (Roth, 2014), though few studies have explored these relations.

Body Surveillance and Body Satisfaction

Internalization has well-documented psychological reactions. Among SMM, it has been shown to be related with two processes in particular: (a) positively with body surveillance, or habitually monitoring one's body and comparing it with unrealistic cultural norms (McKinley & Hyde, 1996), and (b) negatively with body satisfaction, or compatibility between one's body image ideals and one's actual physical attributes (Cash & Szymanski, 1995). These issues may be particularly salient among SMM. For example, in a mixed sample of gay and heterosexual men, gay men reported higher levels of body surveillance, lower body-based self-esteem, higher rates of self-objectification, and higher eating disorder symptoms than heterosexual men (Siever, 1994). A similar study found that gay men were more concerned with maintaining thinness than heterosexual men. This concern was positively related with body surveillance and restricted caloric intake, and negatively related with body satisfaction (Kaminski, Chapman, Haynes, & Own, 2005). Both body surveillance and body satisfaction have been shown to have direct relations with objectification outcomes, including eating disorders symptoms (Fredrickson & Roberts, 1997; Moradi, Dirks, & Matteson, 2005), substance use (Moradi & Huang, 2008), and mental health risks (Brewster et al., 2017; Kaminski et al., 2005; Martins et al., 2007; Parent & Moradi, 2011).

In line with OT, these psychological reactions have also been shown to play important roles in indirect relations between objectification processes and mental health risks among SMM. One study, for example, found an indirect relation between body surveillance and compensatory behaviors (e.g., harmful weight control) via body satisfaction, as well as an indirect relation between internalization and body satisfaction via body surveillance (Wiseman & Moradi, 2010). Another found direct relations between body surveillance and body shame, and subsequently between body shame and disordered eating behavior (Engeln-Maddox, Miller, & Doyle, 2011). Similarly, body surveillance has demonstrated positive relations with internalization and anabolic–androgenic steroid use, as well as negative relations with body satisfaction, among men (Parent & Moradi, 2011). Taken together, these results demonstrate nuanced pathways through which objectification may manifest in mental health risks for SMM.

Self-Esteem for SMM on Apps

Despite the documented reactions to and risks of objectification among SMM, few studies have examined the potential relation between online objectification and a mental health risk of particular salience among this population: self-esteem. This inquiry is justified given decades of research documenting SMM's struggles building and maintaining self-esteem, arguably a result of cultural stigma, structural marginalization, and interpersonal prejudice

(Parsons et al., 2008; Rivera & Dasgupta, 2018). Relations between objectification and self-esteem have been well-documented among women (Tylka & Sabik, 2010) and more recently among SMM, with numerous studies documenting negative impacts of exposure to sexually explicit media on gay men's self-esteem (Griffiths et al., 2018; Kvalem, Træen, & Iantaffi, 2016). Similar relations in the context of app use (a unique form of online sexual media), however, have yet to be fully explored. Dating in general may have de facto associations with self-esteem, in particular for SMM (Pachankis, Goldfried, & Ramrattan, 2008). This may be especially relevant given cultural norms focusing on the male body, which may lead some SMM to be particularly susceptible to low self-esteem (Gettelman & Thompson, 1993; Morrison, Morrison, & Sager, 2004). Body satisfaction in particular has been shown to play an important role in the propagation of men's self-esteem. In one study, for example, the two constructs were positively related among a male subsample (Frost & McKelvie, 2004). Conversely, with a sample of college men, multiple variables capturing body dissatisfaction (e.g., muscle belittlement, muscle displeasure, not liking one's body, feeling out of shape) demonstrated negative direct relations with self-esteem (Olivardia, Pope Jr, Borowiecki III, & Cohane, 2004). As such, we aimed to explore the potential relations between app use, psychological reactions, and self-esteem.

The Present Study

The present study evaluated tenets of OT by testing relations between proposed variables (i.e., number of apps used, app use frequency, online objectification, internalization, body surveillance, and body satisfaction) and self-esteem among a national sample of SMM who use dating/hook-up apps. The model in Figure 1 depicts hypothesized direct and indirect relations grounded in prior OT studies (Velez et al., 2016; Wiseman & Moradi, 2010) and with particular focus on online objectification experiences of SMM. We tested the following sets of hypotheses:

Hypothesis 1:

The first hypothesis tested tenets of OT by exploring correlations and direct relations between a series of variables, such that (a) number of apps used and app use frequency will have positive direct relations with online objectification, (b) online objectification will have positive direct relations with internalization and body surveillance, (c) internalization will have a positive direct relation with body surveillance, (d) body surveillance will have negative direct relations with body satisfaction and self-esteem, and (e) body satisfaction will have a positive direct relation with self-esteem.

Hypotheses 2–6:

The second set of hypotheses tested tenets of OT with a series of indirect relations, including negative indirect relation between online objectification with self-esteem via internalization, body surveillance, and body satisfaction (Hypothesis 2); positive indirect relation between online objectification with body surveillance via internalization (Hypothesis 3); negative indirect relation between online objectification with body satisfaction via internalization and body surveillance (Hypothesis 4); negative indirect relation between internalization with

self-esteem via body surveillance and body satisfaction (Hypothesis 5); and negative indirect relation between body surveillance with self-esteem via body satisfaction (Hypothesis 6).

Hypotheses 7– 8:

Finally, as an exploratory first look at the role of app use on well-being, we predicted a series of negative indirect relations between two app use variables: (a) number of apps used (Hypothesis 7) and (b) app use frequency (Hypothesis 8) with self-esteem. We predicted both variables to be negatively indirectly related to self-esteem via online objectification, internalization, body surveillance, and body satisfaction.

Method

Participants

Data from a sample of 230 app-using U.S. SMM were analyzed for the present study. Participants ranged in age from 18 to 68 years old (M = 31.02, Mdn = 28, SD = 10.15). Among participants, 94% identified as cisgender men and 6% as transgender men and/or nonbinary (though primarily male). In terms of race, approximately 65% reported that they were White, 11% Latinx, 8% Asian/Pacific Islander, 6% Black/African American, and <1% Native American, with an additional 4% reporting they were Multiracial and 5% other races (e.g., “transracial,” “other race”). In terms of sexual orientation, all participants identified as SMM. Of note, 93% of the sample identified as gay, bisexual, queer, asexual, or other ‘not heterosexual identity,’ whereas 5% identified as ‘mostly heterosexual/straight’ and 2% as ‘other.’ Approximately 94% attended at least some college. Mean income (38%) was < $40,000 annually. Participants were majority (63%) employed full time, 22% part time, and 15% unemployed. Residential environment skewed urban (69%), with 25% reporting suburban and 6% reporting rural. Approximately 91% of the sample denied having a disability; in terms of HIV status, 83% were HIV-negative, 10.7% never tested/unknown, and 6% HIV-positive. HIV-negative participants were asked about exposure, utilization, and adherence to Pre-Exposure Prophylaxis (PrEP); 92% had heard of PrEP, 22% prescribed PrEP, and 74% of PrEP-prescribed men reported 100% adherence in the past 30 days.

Procedure

Participants were recruited online through mailing lists, social networking sites (e.g., Facebook, Twitter, Tumblr), support groups, and message boards created by SMM. Tear-tab flyers were also distributed throughout New York City at venues frequented by SMM (i.e., gyms; lesbian, gay, bisexual, transgender, and queer community centers). The study was advertised as a survey about app use. Participants were directed to an online survey hosted by Qualtrics.com and asked to complete an informed consent process affirming they (a) were 18 years or older, (b) identified as men, (c) were attracted to men, (d) used dating/hook-up apps, and (e) lived in the United States. Participants who affirmed they met criteria and consented to participate were then informed of participants’ right and continued on to complete the survey. To maintain confidentiality, we did not record and identifying information aside from an Internet Protocol (IP) address to ensure participants did not take the survey multiple times. IP addresses were subsequently deleted after downloading and

screening data. The study received research ethics committee approval from the Institutional Review Board at Teachers College, Columbia University (Protocol ID 16–348).

A total of 573 individuals clicked on the link and opened the survey. Of those 573 entries, 499 clicked a response to the informed consent, with only two clicking no. Of the remaining 497 cases, 158 entries were removed from the data set due to responding only to the informed consent. Of the remaining 339, 103 cases were removed because they were missing more than 20% of items (in accordance with recommendations set forth by Parent, 2013). Of the remaining 236 cases, all met age criteria. The survey contained four validity checks asking participants to click a particular response (e.g., Please select "Somewhat Agree"); three participants were removed for responding incorrectly to more than one validity check. Three additional participants were removed due to living outside the United States. Two participants were identified as multivariate outliers due to significant Mahalanobis distances ($p < .001$); however, their data were retained, as removing their data had no effect on results (see Results section). Prior to scoring scales, we utilized SPSS Impute Missing Data Values procedure to impute item-level missing data from expectation maximization parameters. Participants responded to the following measures in an order randomized by Qualtrics.com.

Measures

Number of apps used and app use frequency.—To assess patterns of app use, we asked participants two questions previously used with samples of SMM (Landovitz et al., 2013; Rice et al., 2012). First, we measured number of apps used with the following question: "Which of the following apps do you use or have you used in the past year?" (Landovitz et al., 2013). Participants clicked the names of apps they use or have used, with the option of indicating use of any apps not listed in the response options. To create a nominal score, results were grouped on a 4-point continuum: 1 (one app), 2 (two or three apps), 3 (four or five apps), or 4 (six or more apps). Second, we measured app use frequency with the following question: "How often do you log onto online dating apps?" (Rice et al., 2012). Participants reported app use frequency by choosing one of six categorical response options ranging from *less than once a week* to *five or more times a day*.

Online objectification.—To assess online objectification, we used a modified version of the 10-item Sexually Explicit Advances subscale of the Sexual Minority Men's Body Objectification Experiences Scale adapted for online use by four affiliated researchers who identify as SMM who use or have used apps (SMM-BOES; Wiseman, 2009). For example, the item, "How often have you had someone expect you to have sex with them simply because you went out on a date with them?" was modified to "How often has someone on a dating app expected you to have sex with them simply because you exchanged messages with them?" Participants indicated the frequency of online objectification on a 5-point scale ranging from *never* to *almost always*. Scores were summed and averaged, with higher scores representing higher levels of online objectification. SMM-BOES items yielded Cronbach's αs of .89 in the scale development sample of SMM (Wiseman, 2009) and .89 among another SMM sample (Watson & Dispenza, 2014). Cronbach's α for adapted items in the present study was .91.

Internalization.—To assess internalization, we used the nine-item Internalization-General subscale of the Sociocultural Attitudes Toward Appearances Questionnaire (SATAQ-3; Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004). Participants indicated their agreement with items (e.g., "I would like my body to look like the people who are on TV") on a 5-point Likert scale from *definitely disagree* to *definitely agree*. Item responses were summed and averaged to derive subscale scores, with higher scores indicating greater internalization. SATAQ-3 items yielded Cronbach's α of .96 in the scale development sample (Thompson et al., 2004), .93 with a sample of patients with eating disorders (Calogero, Davis, & Thompson, 2004), and .85 with a subsample of gay men (Carper, Negy, & Tantleff-Dunn, 2010). Cronbach's α for SATAQ-3 items was .95 in the present study.

Body surveillance.—To assess body surveillance, we used the eight-item Surveillance subscale of the Objectified Body Consciousness Scale (McKinley & Hyde, 1996). Participants indicated their agreement with items (e.g., "During the day, I think about how I look many times") on a 7-point scale from *strongly disagree* to *strongly agree*. Item responses were summed and averaged to derive subscale scores, with higher scores indicating greater body surveillance. Surveillance subscale items yielded Cronbach's α of .79 with undergraduate women and .76 with middle aged women in the scale development sample (McKinley & Hyde, 1996), .79 with transgender men (Velez et al., 2016), and .90 with sexual minority men (Wiseman & Moradi, 2010). Cronbach's α in the present study was .82.

Body satisfaction.—To assess body satisfaction, we used the 11-item Body-Image Ideals Questionnaire (BIQ; Cash & Szymanski, 1995). Participants were provided with a list of 11 physical attributes (e.g., height, skin, complexion) and asked to rate the degree to which parts of their body match their body ideals. Participants responded to items (e.g., "My body ideal is . . .") on a 4-point scale from *very unlike me* to *exactly as I am*. Item responses were reverse scored, summed, and averaged to derive scale scores, with higher scores indicating lower body satisfaction. BIQ items yielded Cronbach's α of .87 in the scale development sample with men (Cash & Szymanski, 1995) and .87 with a sample of gay men (Kimmel & Mahalik, 2005). Cronbach's α in the present study was .85.

Self-esteem.—To assess self-esteem, we used the 10-item Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965). Participants indicated their agreement with items (e.g., "On the whole, I am satisfied with myself") on a 4-point scale from *strongly disagree* to *strongly agree*. Item responses were summed and averaged to derive scale scores, with higher scores indicating higher self-esteem. In a repeated measures study of college students, RSE items have yielded Cronbach's αs ranging from .88 to .90 across six longitudinal assessments (Robins, Hendin, & Trzesniewski, 2001). RSE items yielded Cronbach's αs of .86 (Pachankis & Goldfried, 2006) and .93 (Fleming & Burns, 2017) with multiple samples of SMM. Cronbach's α in the present study was .92.

Results

Data Screening

Data were screened prior to analysis with regard to skewness (<|3.0|) and kurtosis (<|10.0|; Weston & Gore, 2006). The absolute values of standardized residuals met these benchmarks and thus no univariate outliers were identified. In terms of multivariate outliers, two cases had significant Mahalanobis distances ($p < .001$); however, removing their data had no effect on results and thus they were retained in the final sample ($n = 230$).

Associations of App Use and Objectification Measures With Self-Esteem

Descriptive statistics, Cronbach's αs, and bivariate correlations for variables of interest are presented in Table 1. Correlations were determined to be small ($r = .10$), medium ($r = .30$), or large ($r = .50$) per Cohen's benchmarks and largely supported the posited relations of objectification online with body image variables and self-esteem. The majority of measures yielded small to large correlations with other objectification measures with the following exceptions: app use frequency with online objectification, body satisfaction, and self-esteem; body satisfaction with number of apps used, online objectification, and internalization; self-esteem with online objectification and internalization. In terms of self-esteem, the number of apps used and body surveillance yielded significant negative correlations (small and large, respectively), and body satisfaction yielded a large significant positive correlation.

Model Evaluation

To test our proposed model of online objectification among SMM, we conducted a path analysis using MPlus Version 8 (Muthén & Muthén, 2005) and maximum likelihood estimation. Prior to analysis, items from multi-item latent variables were parceled. Consistent with recommendations for item parceling (Weston & Gore, 2006), each measure was entered into an exploratory factor analysis with principal axis factoring, then constrained to produce only one factor. Item factor loadings were arranged in order of magnitude, and items were assigned to one of three parcels in countervailing order to optimize the equality of factor loadings per parcel. To assess model fit, we utilized comparative fit index (CFI), root-mean-square error of approximation (RM-SEA), and standardized root-mean-square residual (SRMR); for samples with less than 500 participants, guidelines for acceptable fit with these indices are CFI ≥ .90 and RMSEA and SRMR ≤ .10 (Weston & Gore, 2006).

We first tested a measurement model. In this model, all parcels were assigned to load onto their latent factors for the latent variables and the two variables measuring patterns of app use (i.e., number of apps used, app use frequency) were designated as manifest. All latent variables (online objectification, internalization, body surveillance, body satisfaction, self-esteem) and the two app use variables were allowed to covary. The fit of the measurement model was strong, $\chi^2(100) = 148.57$, $p < .01$; CFI = .98; RMSEA = 0.046 (95% confidence interval [CI; 0.029, 0.061]); SRMR = 0.031. All item parcels loaded onto their intended latent constructs at $p < .001$.

Direct relations (Hypothesis 1).—Given that the measurement model demonstrated adequate fit, we next tested the structural model. Standardized path coefficients for unique direct relations in the model are presented in Figure 2. Barring one exception−the nonsignificant direct relation of app use frequency with online objectification−the pattern of direct relations was consistent with Hypothesis 1. This model was also a good fit to the data; $\chi^2(112) = 173.03$, $p < .01$; CFI = .98; RMSEA = 0.049 (95% CI [0.034, 0.063]); SRMR = 0.053. The hypothesized structural model accounted for 7% of the variance in online objectification, 9% in internalization, 27% in body surveillance, 27% in body satisfaction, and 10% in self-esteem.

Indirect relations between internalization and psychological reactions with self-esteem (Hypotheses 2– 6).—To test our application of OT with SMM (Hypotheses 2– 6), we examined indirect relations from five objectification variables to self-esteem. If an indirect relation's 95% CI does not contain zero, it is significant at (at least) $p < .05$ (Mallinckrodt, Abraham, Wei, & Russell, 2006). See Table 2 for results, which provided support for Hypotheses 2 through 6. Specifically, Hypothesis 2 was supported as the negative indirect relation of online objectification to self-esteem was significantly mediated via a series of unique indirect links including internalization, body surveillance, and body satisfaction, $B = -.10$ (95% CI [−.183, −.047]), β= −.11. Hypotheses 3 and 4 were supported by a significant positive indirect path from online objectification to body surveillance via internalization, $B = .22$ (95% CI [.098, .369]), β= .14, and a significant negative indirect path to body satisfaction via internalization and body surveillance, $B = -.11$ (95% CI [−.197, −.042]), β = −.09. Internalization was indirectly and negatively to self-esteem via the mediated relation of body surveillance and body satisfaction, $B = -.11$ (95% CI [−.179, −.067]), β= −.16 (Hypothesis 5). In support of Hypothesis 6, body satisfaction mediated the link between body surveillance and self-esteem, $B = -.08$ (95% CI [−.153, −.033]), β= −.12.

Indirect relations between app use variables with self-esteem (Hypotheses 7– 8).—Finally, to test our expansion of OT within the context of app use, we examined indirect relations from the two app use variables to self-esteem. These exploratory analyses were partially supported. Specifically, the number of apps used was negatively indirectly related with self-esteem via a series of mediated links through online objectification, internalization, body surveillance, and body satisfaction, $B = -.01$ (95% CI [−.018, −.003]), β = −.02 (Hypothesis 7). Parallel analyses with app use frequency were nonsignificant (Hypothesis 8).

Discussion

The present study expanded prior research on objectification theory, conducted primarily with women to measure the impact of offline objectification, to explore the unique experiences of SMM who use online dating apps. Specifically, the study tested relations of two app use-specific variables (i.e., number of apps used, app use frequency), a modified objectification variable (i.e., online objectification), internalization, two psychological reaction variables (i.e., body surveillance, body satisfaction), and a psychological outcome (i.e., self-esteem). Findings of the present study demonstrate continued support for the application of tenets of OT both among SMM *and* online. Direct and indirect relations

reveal the unique impact of app use among SMM, a population with both high utilization of apps and disproportionate levels of body image issues and low self-esteem (Yelland & Tiggemann, 2003).

In partial support of our first set of hypotheses, the pattern of relations among variables of interest was consistent with prior OT research among both women (Szymanski et al., 2011) and men (Brewster et al., 2017; Kimmel & Mahalik, 2005; Parent & Moradi, 2011). Specifically, higher levels of objectification (in this case online) were associated with higher levels of internalization and body surveillance, with large effect sizes. Higher levels of internalization were associated with higher levels of body surveillance, with a large effect size. Lastly, higher levels of body surveillance were associated with lower levels of body satisfaction and self-esteem, again with large effects sizes. These findings are consistent with existent literature on offline objectification experiences of SMM. However, they are among the first to examine the nuanced processes by which online objectification may impact SMM in these specific ways.

Results from the present study provided support for our second set of hypotheses (Hypotheses 2– 6), in particular suggesting indirect relations between online objectification and self-esteem through internalization, body surveillance, and body satisfaction. These data suggest a nuanced process through which online objectification exacerbates body image concerns as well as lower levels of self-esteem among SMM. Results suggest processes similar to those impacted by offline objectification and support a call for further exploration of the impact of app use among this population (Miller, 2015). Unsurprisingly, body satisfaction yielded a positive direct relation with self-esteem, adding further support to prior research that issues of body satisfaction may be uniquely tied to sexual identity for SMM and exacerbated by in-group objectification experiences (Beren, Hayden, Wilfley, & Grilo, 1996; Yelland & Tiggemann, 2003).

Results provided partial support for our third set of hypotheses. In particular, data revealed small yet significant negative direct and indirect relations between number of apps used and self-esteem (Hypothesis 7). This is especially notable given the finding that app use frequency did not relate significantly with self-esteem nor online objectification, contrary to Hypotheses 1a and 8. Perhaps most compelling is the finding that number of apps used, though not app use frequency, demonstrated a significant direct relationship with online objectification. These results suggest that number of apps used may play a more important role in processes of objectification. It is also possible that particular apps may be more objectifying than others, either by encouraging more body-focused images and/or including more information about men’s body types, appearances, and body preferences. Thus, there may also be a cumulative detrimental effect of using a higher number of apps as suggested in our results. Importantly, these results contrast those from recent studies suggesting positive relations between increased social media use frequency and body dissatisfaction and eating disorder symptoms among SMM (Anderson et al., 2018; Griffiths et al., 2018). In these studies, increased frequency had a more significant impact than number of apps used; our results suggest the opposite.

One explanation for the negative relation between number of apps used and self-esteem is the "fishing" hypothesis: Different apps emerge on the market each month providing SMM with tailored online communities of men with different body types, kinks and sexual interests, and identity-based demographics (Grov et al., 2014). SMM with lower self-esteem may not feel as confident in their self-presentation, and thus may cast a "wider net" to other men with more diverse interests. It is possible that having poor experiences on a variety of apps may result in increased experiences of rejection, thereby exacerbating poor self-esteem in SMM. Future studies may benefit from deeper analyses of patterns of app use as they relate to other psychological reactions of objectification and varying levels of self-esteem. For example, we encourage future research into potential relations between levels and patterns of self-objectification on apps (e.g., cropping one's face out of photos, referring to one's body in dehumanizing ways) and self-esteem.

Limitations

Findings of the present study should be interpreted in light of several limitations. First, even though Internet recruitment has multiple strengths (e.g., accessing participants who can be hard-to-reach in person, enabling participation of individuals who are not comfortable talking about their personal experiences in person), online studies limit recruitment to people who have access to Internet/computer access. To be eligible for the present study, SMM were required to use Internet-based mobile apps, thus justifying potential generalizability of the study's results among other app-using SMM. Though our sample was racially diverse (35% men of color) and income, it was mostly compromised of college-educated (94%), cisgender (94%) individuals. A recent study revealed complex processes by which transgender men in particular are dehumanized and objectified (Velez et al., 2016); as such, we support a call for more nuanced understandings of transgender men's online objectification. Most of our participants resided in urban U.S. environments (69%) with approximately 6% in rural areas. Considering apps are geolocational, there may be differences in urban versus rural experiences. The wide age range (18 – 68) of the sample is notable given the nuanced ways older SMM may experience objectification experiences. Despite the wide range, the median age of our sample was 28, indicating limited generalizability of results among older SMM. The sample in the present study represents a cohort of SMM that came of age after the initial HIV/AIDS crisis, potentially impacting the behavioral and psychological pathways through which sexual health, pleasure, and standards of attractiveness are expressed and internalized (Tester, 2018).

Implications for Future Research and Practice

The cross-sectional nature of our research can also be interpreted as a limitation. A longitudinal and/or experimental study may be valuable to investigate the impact of long-term dating app use on the mental health of sexual minority men, as it may potentially be different than short-term use. Indeed, apps continue to evolve in the ways they address safer sex, online harassment, and the processes by which SMM categorize themselves and others by HIV status, body type, phenotype, and demographics. Code built in to address these issues may have a potentially protective impact, and this may be taken into consideration in future research on dating app experiences of SMM.

Another direction for future research may be focusing on how app use experiences differs among diverse groups of SMM. The experiences of SMM who are gay-identified may be different than those of bisexual-identified men given the demonstrated impact of antibisexual prejudice in sexual minority spaces (Brewster & Moradi, 2010). Men of color, fat men, and femme-identified SMM may certainly be impacting by intersections of objectification and marginalization, and we support calls for research examining the impact of racial, body size, and class politics of desire and exclusion (Han & Choi, 2018).

Lastly, given calls for measuring resilience and positive outcomes among SMM (McConnell, Janulis, Phillips, Truong, & Birkett, 2018), we also suggest future studies examine potential protective mechanisms specific to app use. For example, apps may provide SMM agency regarding coming out and/or discussing HIV and may be uniquely positioned to support SMM in contending with stigma and isolation (Miller, 2015; Roth, 2014; Taylor, Hutson, & Alicea, 2017). We encourage app-using SMM to be mindful when they experience online objectification to potentially mitigate the impact of subsequent psychological reactions. Similarly, we encourage app development companies to provide resources informing users about disproportionate rates of body image-related issues as well as potential resources to cope with objectification and body image concerns. Given the demonstrated negative relations between number of apps used and self-esteem, we encourage clinicians and researchers to support SMM in their romantic, sexual, and social pursuits online. SMM may inevitably be objectified, objectify others, or be ignored, blocked, and “filtered out” by other men using dating apps. We thus encourage both SMM and their providers to buffer resilience, distress tolerance, and social support to contend with the unique implications of experiences of online objectification.

References

Ahlm J. (2017). Respectable promiscuity: Digital cruising in an era of queer liberalism. Sexualities, 20, 364–379. 10.1177/1363460716665783

Anderson JR, Holland E, Koc Y, & Haslam N. (2018). iObjectify: Self-and other-objectification on Grindr, a geosocial networking application designed for men who have sex with men. European Journal of Social Psychology, 48, 600–613. 10.1002/ejsp.2350

Beren SE, Hayden HA, Wilfley DE, & Grilo CM (1996). The influence of sexual orientation on body dissatisfaction in adult men and women. International Journal of Eating Disorders, 20, 135–141. 10.1002/(SICI)1098-108X(199609)20:2<135::AID-EAT3>3.0.CO;2-H [PubMed: 8863065]

Blackwell C, Birnholtz J, & Abbott C. (2015). Seeing and being seen: Co-situation and impression formation using Grindr, a location-aware gay dating app. New Media and Society, 17, 1117–1136. 10.1177/1461444814521595

Brewster ME, & Moradi B. (2010). Perceived experiences of anti-bisexual prejudice: Instrument development and evaluation. Journal of Counseling Psychology, 57, 451–468. 10.1037/a0021116

Brewster ME, Sandil R, DeBlaere C, Breslow A, & Eklund A. (2017). “Do you even lift, bro?” Objectification, minority stress, and body image concerns for sexual minority men. Psychology of Men and Masculinity, 18, 87–98. 10.1037/men0000043

Calogero RM, Davis WN, & Thompson JK (2004). The Sociocultural Attitudes Toward Appearance Questionnaire (SATAQ-3): Reliability and normative comparisons of eating disordered patients. Body Image, 1, 193–198. 10.1016/j.bodyim.2004.01.004 [PubMed: 18089151]

Carper TLM, Negy C, & Tantleff-Dunn S. (2010). Relations among media influence, body image, eating concerns, and sexual orientation in men: A preliminary investigation. Body Image, 7, 301–309. 10.1016/j.bodyim.2010.07.002 [PubMed: 20739233]

Cash TF, & Szymanski ML (1995). The development and validation of the Body-Image Ideals Questionnaire. Journal of Personality Assessment, 64, 466–477. 10.1207/s15327752jpa6403_6 [PubMed: 16367722]

Daniel S, & Bridges SK (2010). The drive for muscularity in men: Media influences and objectification theory. Body Image, 7, 32–38. 10.1016/j.bodyim.2009.08.003 [PubMed: 19815476]

Engeln-Maddox R, Miller SA, & Doyle DM (2011). Tests of objectification theory in gay, lesbian, and heterosexual community samples: Mixed evidence for proposed pathways. Sex Roles, 65, 518–532. 10.1007/s11199-011-9958-8

Fleming JB, & Burns MN (2017). Online evaluative conditioning did not alter internalized homonegativity or self-esteem in gay men. Journal of Clinical Psychology, 73, 1013–1026. 10.1002/jclp.22388 [PubMed: 27755649]

Fredrickson BL, & Roberts T-A (1997). Objectification theory: Toward understanding women's lived experiences and mental health risks. Psychology of Women Quarterly, 21, 173–206. 10.1111/j.1471-6402.1997.tb00108.x

Frost J, & McKelvie S. (2004). Self-esteem and body satisfaction in male and female elementary school, high school, and university students. Sex Roles, 51, 45–54. 10.1023/B:SERS.0000032308.90104.c6

Gettelman TE, & Thompson JK (1993). Actual differences and stereotypical perceptions in body image and eating disturbance: A comparison of male and female heterosexual and homosexual samples. Sex Roles, 29, 545–562. 10.1007/BF00289327

Giles DC, & Close J. (2008). Exposure to "lad magazines" and drive for muscularity in dating and non-dating young men. Personality and Individual Differences, 44, 1610–1616. 10.1016/j.paid.2008.01.023

Goedel WC, Krebs P, Greene RE, & Duncan DT (2017). Associations between perceived weight status, body dissatisfaction, and self-objectification on sexual sensation seeking and sexual risk behaviors among men who have sex with men using Grindr. Behavioral Medicine, 43, 142–150. 10.1080/08964289.2015.1121130 [PubMed: 26808206]

Griffiths S, Mitchison D, Murray SB, & Mond JM (2018). Pornography use in sexual minority males: Associations with body dissatisfaction, eating disorder symptoms, thoughts about using anabolic steroids and quality of life. The Australian and New Zealand Journal of Psychiatry, 52, 339–348. 10.1177/0004867417728807 [PubMed: 28891676]

Griffiths S, Murray SB, Krug I, & McLean SA (2018). The contribution of social media to body dissatisfaction, eating disorder symptoms, and anabolic steroid use among sexual minority men. Cyberpsychology, Behavior, and Social Networking, 21, 149–156. 10.1089/cyber.2017.0375 [PubMed: 29363993]

Grov C, Breslow AS, Newcomb ME, Rosenberger JG, & Bauermeister JA (2014). Gay and bisexual men's use of the Internet: Research from the 1990s through 2013. Journal of Sex Research, 51, 390–409. 10.1080/00224499.2013.871626 [PubMed: 24754360]

Gudelunas D. (2012). There's an app for that: The uses and gratifications of online social networks for gay men. Sexuality and Culture, 16, 347–365. 10.1007/s12119-012-9127-4

Han C, & Choi K-H (2018). Very few people say "No Whites": Gay men of color and the racial politics of desire. Sociological Spectrum, 38, 145–161. 10.1080/02732173.2018.1469444 [PubMed: 30906102]

Holland G, & Tiggemann M. (2016). A systematic review of the impact of the use of social networking sites on body image and disordered eating outcomes. Body Image, 17, 100–110. 10.1016/j.bodyim.2016.02.008 [PubMed: 26995158]

Kaminski PL, Chapman BP, Haynes SD, & Own L. (2005). Body image, eating behaviors, and attitudes toward exercise among gay and straight men. Eating Behaviors, 6, 179–187. 10.1016/j.eatbeh.2004.11.003 [PubMed: 15854864]

Kimmel SB, & Mahalik JR (2005). Body image concerns of gay men: The roles of minority stress and conformity to masculine norms. Journal of Consulting and Clinical Psychology, 73, 1185–1190. 10.1037/0022-006X.73.6.1185 [PubMed: 16392992]

Klein H. (2009). Differences in HIV risk practices sought by self-identified gay and bisexual men who use Internet websites to identify potential sexual partners. Journal of Bisexuality, 9, 125–140. 10.1080/15299710902881533 [PubMed: 31097923]

Kozak M, Frankenhauser H, & Roberts T-A (2009). Objects of desire: Objectification as a function of male sexual orientation. Psychology of Men and Masculinity, 10, 225–230. 10.1037/a0016257

Kvalem IL, Træen B, & Iantaffi A. (2016). Internet pornography use, body ideals, and sexual self-esteem in Norwegian gay and bisexual men. Journal of Homosexuality, 63, 522–540. 10.1080/00918369.2015.1083782 [PubMed: 26296007]

Landovitz RJ, Tseng C-H, Weissman M, Haymer M, Mendenhall B, Rogers K, . . . Shoptaw S. (2013). Epidemiology, sexual risk behavior, and HIV prevention practices of men who have sex with men using GRINDR in Los Angeles, CA. Journal of Urban Health, 90, 729–739. 10.1007/s11524-012-9766-7 [PubMed: 22983721]

Mahalik JR, Good GE, & Englar-Carlson M. (2003). Masculinity scripts, presenting concerns, and help seeking: Implications for practice and training. Professional Psychology: Research and Practice, 34, 123–131. 10.1037/0735-7028.34.2.123

Mallinckrodt B, Abraham WT, Wei M, & Russell DW (2006). Advances in testing the statistical significance of mediation effects. Journal of Counseling Psychology, 53, 372–378. 10.1037/0022-0167.53.3.372

Martins Y, Tiggemann M, & Kirkbride A. (2007). Those speedos become them: The role of self-objectification in gay and heterosexual men's body image. Personality and Social Psychology Bulletin, 33, 634–647. 10.1177/0146167206297403 [PubMed: 17440202]

McConnell EA, Janulis P, Phillips G II, Truong R, & Birkett M. (2018). Multiple minority stress and LGBT community resilience among sexual minority men. Psychology of Sexual Orientation and Gender Diversity, 5, 1–12. 10.1037/sgd0000265 [PubMed: 29546228]

McKinley NM, & Hyde JS (1996). The objectified body consciousness scale: Development and validation. Psychology of Women Quarterly, 20, 181–215. 10.1111/j.1471-6402.1996.tb00467.x

Miller B. (2015). "Dude, where's your face?" Self-presentation, self-description, and partner preferences on a social networking application for men who have sex with men: A content analysis. Sexuality and Culture, 19, 637–658. 10.1007/s12119-015-9283-4

Moradi B, Dirks D, & Matteson AV (2005). Roles of sexual objectification experiences and internalization of standards of beauty in eating disorder symptomatology: A test and extension of objectification theory. Journal of Counseling Psychology, 52, 420–428. 10.1037/0022-0167.52.3.420

Moradi B, & Huang Y-P (2008). Objectification theory and psychology of women: A decade of advances and future directions. Psychology of Women Quarterly, 32, 377–398. 10.1111/j.1471-6402.2008.00452.x

Morrison MA, Morrison TG, & Sager C-L (2004). Does body satisfaction differ between gay men and lesbian women and heterosexual men and women? A meta-analytic review. Body Image, 1, 127–138. 10.1016/j.bodyim.2004.01.002 [PubMed: 18089146]

Muthén LK, & Muthén BO (2005). Mplus: Statistical analysis with latent variables: User's guide. Los Angeles, CA: Authors.

Olivardia R, Pope HG Jr., Borowiecki JJ III, & Cohane GH (2004). Biceps and body image: The relationship between muscularity and self-esteem, depression, and eating disorder symptoms. Psychology of Men and Masculinity, 5, 112–120. 10.1037/1524-9220.5.2.112

Pachankis JE, & Goldfried MR (2006). Social anxiety in young gay men. Journal of Anxiety Disorders, 20, 996–1015. 10.1016/j.janxdis.2006.01.001 [PubMed: 16500074]

Pachankis JE, Goldfried MR, & Ramrattan ME (2008). Extension of the rejection sensitivity construct to the interpersonal functioning of gay men. Journal of Consulting and Clinical Psychology, 76, 306–317. 10.1037/0022-006X.76.2.306 [PubMed: 18377126]

Parent MC (2013). Clinical considerations in etiology, assessment, and treatment of men's muscularity-focused body image disturbance. Psychology of Men and Masculinity, 14, 88–100. 10.1037/a0025644

Parent MC, & Brace T. (2017). Body image issues and men. In Nadal KL (Ed.), The SAGE encyclopedia of psychology and gender (pp. 231–233). Thousand Oaks, CA: Sage.

Parent MC, & Moradi B. (2011). His biceps become him: A test of objectification theory's application to drive for muscularity and propensity for steroid use in college men. Journal of Counseling Psychology, 58, 246–256. 10.1037/a0021398 [PubMed: 21142351]

Parsons JT, Kelly BC, Bimbi DS, DiMaria L, Wainberg ML, & Morgenstern J. (2008). Explanations for the origins of sexual compulsivity among gay and bisexual men. Archives of Sexual Behavior, 37, 817–826. 10.1007/s10508-007-9218-8 [PubMed: 17882541]

Rice E, Holloway I, Winetrobe H, Rhoades H, Barman-Adhikari A, Gibbs J, . . . Dunlap S. (2012). Sex risk among young men who have sex with men who use Grindr, a smartphone geosocial networking application. Journal of AIDS and Clinical Research, S4, 005. 10.4172/2155-6113.S4-005

Rivera LM, & Dasgupta N. (2018). The detrimental effect of affirming masculinity on judgments of gay men. Psychology of Men and Masculinity, 19, 102–116. 10.1037/men0000074

Robins RW, Hendin HM, & Trzesniewski KH (2001). Measuring global self-esteem: Construct validation of a single-item measure and the Rosenberg Self-Esteem Scale. Personality and Social Psychology Bulletin, 27, 151–161. 10.1177/0146167201272002

Rosenberg M. (1965). Rosenberg Self-Esteem Scale (RSE). Acceptance and Commitment Therapy Measures Package, 61, 52.

Roth Y. (2014). Locating the "scruff guy": Theorizing body and space in gay geosocial media. International Journal of Communication, 8, 2113–2133.

Siever MD (1994). Sexual orientation and gender as factors in socio-culturally acquired vulnerability to body dissatisfaction and eating disorders. Journal of Consulting and Clinical Psychology, 62, 252–260. 10.1037/0022-006X.62.2.252 [PubMed: 8201061]

Smith A. (2016). 15% of American adults have used online dating sites or mobile dating apps. Pew Research Center. Retrieved from pewinternet.org

Szymanski DM, Moffitt LB, & Carr ER (2011). Sexual objectification of women: Advances to theory and research. The Counseling Psychologist, 39, 6–38. 10.1177/0011000010378402

Taylor SH, Hutson JA, & Alicea TR (2017). Social consequences of grindr use: Extending the internet-enhanced self-disclosure hypothesis. In Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems (pp. 6645–6657). ACM, Toronto, ON.

Tester G. (2018). "And then AIDS came along": A life course turning point and sub-cohorts of older gay men. Journal of Gay and Lesbian Social Services, 30, 33–48. 10.1080/10538720.2017.1408516

Thompson JK, van den Berg P, Roehrig M, Guarda AS, & Heinberg LJ (2004). The Sociocultural Attitudes Towards Appearance Scale-3 (SATAQ-3): Development and validation. International Journal of Eating Disorders, 35, 293–304. 10.1002/eat.10257 [PubMed: 15048945]

Tiggemann M, & Lynch JE (2001). Body image across the life span in adult women: The role of self-objectification. Developmental Psychology, 37, 243–253. 10.1037/0012-1649.37.2.243 [PubMed: 11269392]

Tiggemann M, & Slater A. (2001). A test of objectification theory in former dancers and non-dancers. Psychology of Women Quarterly, 25, 57–64. 10.1111/1471-6402.00007

Tylka TL, & Sabik NJ (2010). Integrating social comparison theory and self-esteem within objectification theory to predict women's disordered eating. Sex Roles, 63, 18–31. 10.1007/s11199-010-9785-3

Velez BL, Breslow AS, Brewster ME, Cox R Jr., & Foster AB (2016). Building a pantheoretical model of dehumanization with transgender men: Integrating objectification and minority stress theories. Journal of Counseling Psychology, 63(5), 497–508. 10.1037/cou0000136 [PubMed: 27045449]

Watson LB, & Dispenza F. (2014). Experiences of objectification and sexual risk behaviors among sexual minority men. Psychology of Sexual Orientation and Gender Diversity, 1, 40–50. 10.1037/0000014

Weston R, & Gore PA Jr. (2006). A brief guide to structural equation modeling. The Counseling Psychologist, 34, 719–751. 10.1177/0011000006286345

Wiseman MC (2009). The Development and Validation of the Sexual Minority Men's Body Objectification Experiences Scale (PhD Thesis). University of Florida, Gainesville, FL.

Wiseman MC, & Moradi B. (2010). Body image and eating disorder symptoms in sexual minority men: A test and extension of objectification theory. Journal of Counseling Psychology, 57, 154–166. 10.1037/a0018937 [PubMed: 21133567]

Yelland C, & Tiggemann M. (2003). Muscularity and the gay ideal: Body dissatisfaction and disordered eating in homosexual men. Eating Behaviors, 4, 107–116. 10.1016/S1471-0153(03)00014-X [PubMed: 15000974]

Public Significance Statement

Dating apps may play a critical role in the ways sexual minority men internalize difficult standards about body image and self-esteem. The main finding is that men who use a higher number of apps also report higher levels of self-objectification processes and lower levels of self-esteem.

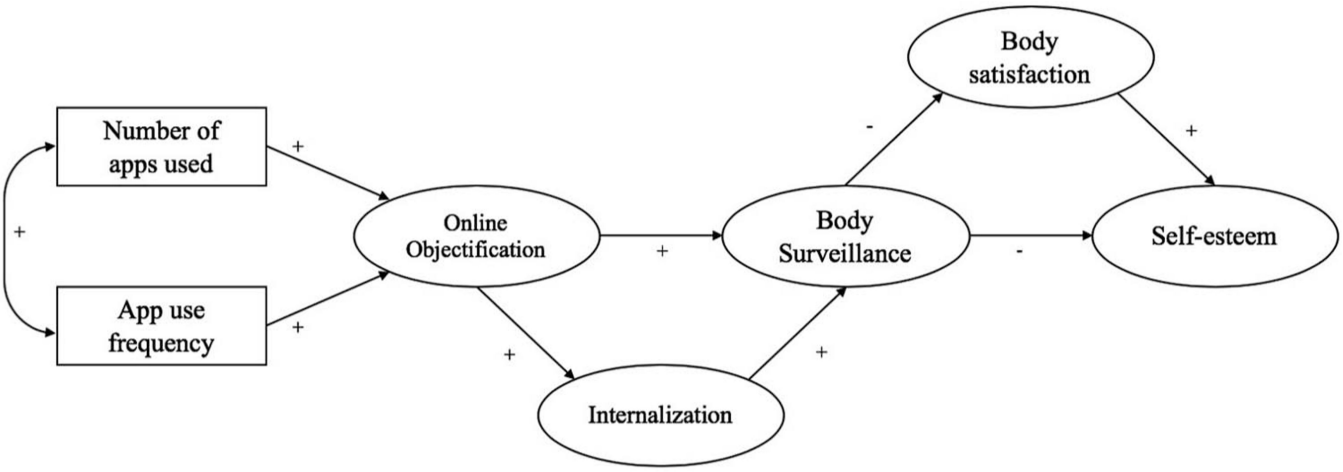

Figure 1.
Hypothesized direct relations between variables of interest.

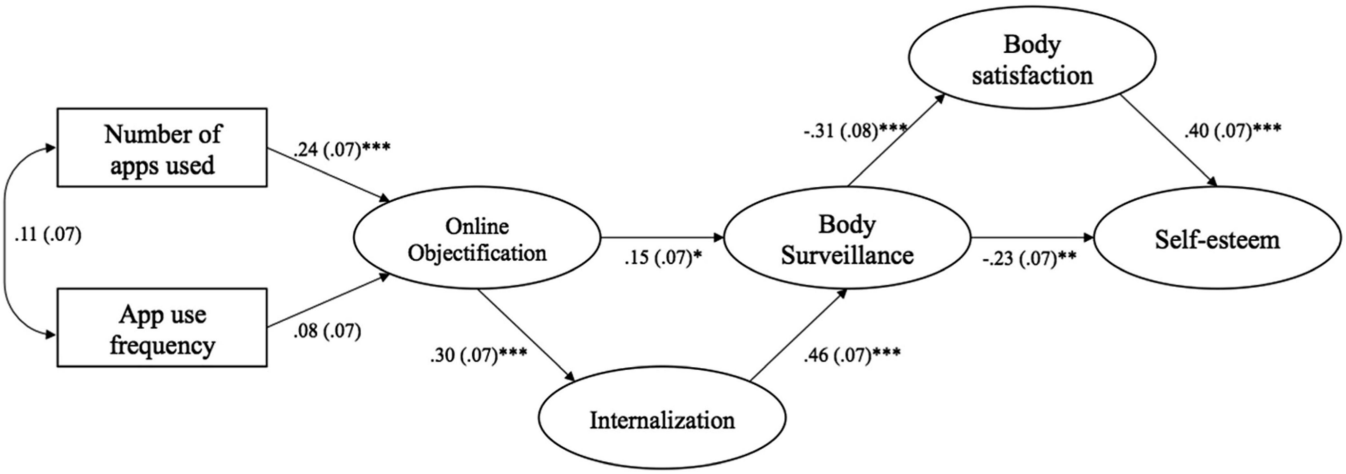

Figure 2.

Structural equation model of direct relations of latent factors. Values outside parentheses are standardized coefficients and values in parentheses are standard errors (SE). Dashed lines indicate nonsignificant paths and solid lines indicate significant paths. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 1

Bivariate Correlations, Descriptive Statistics, and Cronbach's αs for Variables of Interest

Variable	1	2	3	4	5	6	Possible range	*M*	*SD*	α[a]
1. Number of apps used	—						1–4	2.44	0.90	—
2. App use frequency	.12	—					1–6	4.63	1.46	—
3. Online objectification	.25***	.10	—				1–5	2.22	0.59	.91
4. Internalization	.15*	.14*	.29***	—			1–5	3.41	0.98	.95
5. Body surveillance	.15*	.21**	.24***	.45***	—		1–7	4.73	1.05	.82
6. Body satisfaction	−.05	− .06	−.04	−.09	−.23***	—	1–4	3.28	0.64	.85
7. Self-esteem	−.13*	.01	−.12	−.08	−.33***	.33***	1–4	2.81	0.60	.92

[a]Number of apps used and app use frequency are single-item measures.

*$p < .05$.

**$p < .01$.

***$p < .001$.

Table 2

Total Indirect Relations

Hypothesis	Predictor	Mediator(s)	Criterion	Standardized indirect relation		Unstandardized indirect relation		95% CI of unstandardized indirect relation	
				β	*SE*	*B*	*SE*	Lower bound	Upper bound
2	Online objectification	Internalization, body surveillance, body satisfaction	Self-Esteem	−.100	.032	−.105	.034	−.183	−.047*
3	Online objectification	Internalization	Body surveillance	.136	.041	.216	.069	.098	.369*
4	Online objectification	Internalization, body surveillance	Body satisfaction	−.088	.031	−.105	.038	−.197	−.042*
5	Internalization	Body surveillance, body satisfaction	Self-Esteem	−.162	.037	−.114	.028	−.179	−.067*
6	Body surveillance	Body satisfaction	Self-Esteem	−.123	.041	−.081	.030	−.153	−.033*
7	Number of apps used	Online objectification, internalization, body surveillance, body satisfaction	Self-Esteem	−.024	.011	−.008	.004	−.018	−.003*
8	App use frequency	Online objectification, internalization, body surveillance, body satisfaction	Self-Esteem	.008	.008	.003	.004	−.002	.014

Note. CI = confidence interval.

* $p < .05$.